Centurion Scientific Ltd

PVD Display Bench Top Centrifuges

Instruction Manual

General Safety

To ensure that the centrifuge is operated in a safe manner, avoiding the hazard of injury to personal or damage to material goods, the following safety precautions should be followed at all times:

- **The centrifuge must only be opened by trained personnel competent in its use.**
- **Never use the centrifuge unless the rotor is properly mounted and secure.**
- **Never open, or attempt to open the lid while centrifuge rotor is still turning**
- **Only use original parts for the centrifuge**
- **Never operate the centrifuge if components are missing or damaged.**
- **If the rotor shows visible signs of wear its use must be discontinued and replacement fitted.**
- **The rotor must not be overloaded; the maximum allowed density of the samples at full operating speed is 1.2g/cm^3.**
- **Always endeavour to make sure that opposite tubes are of the same weight to avoid rotor imbalance. If the tubes are filled with the same material they must, therefore, be filled with the same amount.**
- **No changes should be made to mechanical or electrical components without prior consultation with and the written permission of Centurion Scientific.**
- **The centrifuge has not been manufactured from inert materials or to be explosion proof. Ensure that it is not operated within an environment or with materials at all times during the run.**
- **During operation a "safe" zone of 30cm must be maintained around the centrifuge. This zone should be clear of personnel and hazardous materials at the times during the run.**
- **Substances of a radioactive, flammable or explosive nature must not be centrifuged.**
- **Substances Prone to react briskly with each other must not be centrifuged at the same time.**
- **Toxins and pathogenic micro-organisms must not be centrifuged unless the proper precautions for their handling have been taken. These may include, but are not limited to, biological seals. Should toxins or pathogens enter the centrifuge or its parts the proper procedures for the disinfecting the centrifuge should be carried out.**
- **Strongly corrosive substances that may cause damage to or impair the mechanical strength of the rotor may only be centrifuged inside protective vessels. Should any doubt exist regarding the substance or the suitability of a particular vessel for use with it, consult the safety inspector.**

Installation

The instrument has been designed in such a way that installation should present no problems to a technician familiar with equipment of this type.
Should any problems of questions arise during the installation of the instrument please refer to Centurion Scientific for advice.

Work Surface:

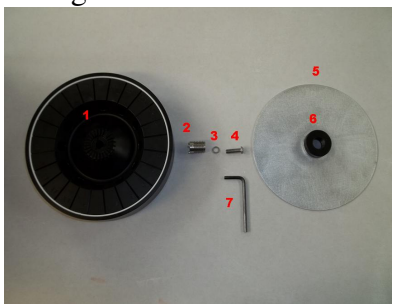
The work surface must be stable and, where possible, resonance free – a standard laboratory bench is usually suitable. The location of the centrifuge should be well ventilated and out of direct sunlight, having sufficient room to allow air to circulate around it freely. A safety zone extending for 30cm in all directions must be maintained around the centrifuge. The space should be kept clear; in particular no hazardous material may be place in the area during centrifugation.

Mains Connection:

Before with connecting the unit to the mains, ensure that the voltage and frequency of supply match the specifications on the instrument. A mains plug, provided with a 5 amp fuse and of a type suitable for use where the centrifuge is to be installed, should be fitted. This plug must be wired up according to the international convention.

Rotor Assembly:

The Rotor assembly locates on to the tapered shaft of the drive shaft, being held securely in position by a threaded fastener and locking screw. It is important that these items are assembled in the correct order and all parts are used as intended.
To locate the rotor first, check that both the exterior surface of the shaft and the tapered bore of the rotor itself are free of any foreign debris.



1: PLACE ROTOR ON SHAFT OF MOTOR, **2:** LOCATE THREADED FASTENER (ITEM 2) INTO INTERLOCKING PIN HOLES ON ROTOR, **3**: PLACE M6 SPRING WASHER (ITEM 3) ONTO M6X20MM SCREW (ITEM 4), **4**: INSERT SCREW AND WASHER INTO CENTRAL HOLE OF THREADED FASTENER, **5**: TIGHTEN WITH ALLEN KEY (ITEM 7), **6**: PLACE SAMPLES IN AS REQUIRED, **7:** PLACE ROTOR LID (ITEM 5) ON THREADED FASTENER, **8:** TIGHTEN USING ROTOR KNOB (ITEM 6)

Operation

Filling and loading of sample tubes:

The Centrifuge functions in the most efficient manner when unbalance of the rotor is minimised. This prevents undue vibration perturbing the separation zones of the substance being centrifuged. It is therefore important that unbalance due to loading unequal loading of the sample tubes is minimised as far as possible.
The maximum permissible imbalance of the rotor is 1g.
Imbalance may be minimised by following a few simple a quick procedures as described in the following paragraphs.

- The sample tubes should be filled as evenly as possible. Where practical, tubes containing the same substance should be placed opposite each other.
- The rotor should be loaded symmetrically, this being best achieved by using all of the bores always receive tubes of the same weight.

Cleaning, Disinfecting and Maintenance:

Isolate and disconnect the power supply before carrying out the cleaning or maintenance.

Centrifuge Body:

- Regularly wipe down the external surfaces with a mild detergent.
- Mop up any spillage with an absorbent cloth. Check to ensure that the liquid has not entered the main body of the centrifuge

WARNING: If any liquid has entered the main body of the centrifuge it must not be used. Contact the supplier or Centurion Scientific Ltd immediately for advice.

Rotor;

- Remove the locking screw with the key provided
- Pull the rotor off the shaft by applying equal force of both sides
- NOTE: If any stiffness or difficulty is experienced when attempting to remove the rotor this may be overcome by applying a sharp tap to the rotor shaft. A non-metallic object (e.g. plastic mallet) must be used to prevent damage to the shaft.
- Clean the rotor using suitable detergent and hot water. Alternatively the rotor may be cleaning in an autoclave at maximum temperature of 120°c
- Thoroughly rinse and dry the rotor.
- Inspect the rotor for any hairline cracks, damage or other defects. If any are found please contact your supplier or Centurion Scientific Ltd

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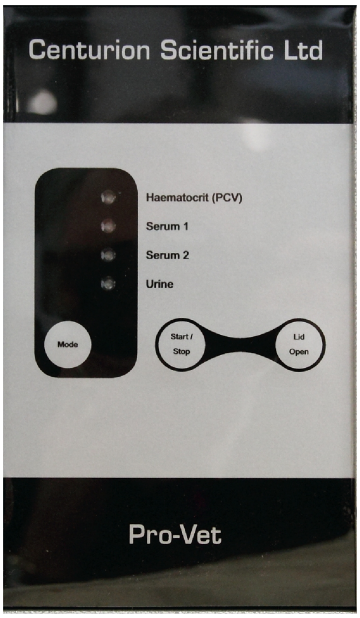


To use the Centrifuge – Follow safety Instructions on previous pages. Always Load Sample evenly

Load samples, Fit lid (if applicable)

Close centrifuge lid. Press down firmly on both left and right sides.

Select the mode relevant to the sample you wish to process (refer to procedure page for advice) by using the mode button (bottom left) on your centrifuge.

Press Start button (middle button) – the motor will now start and accelerate to the designated setting.

When time has counted down the rotor will decelerate (brake)

The rotor will stop and the centrifuge will make a beeping sound to inform you the run has now finished.

Press the lid open button (bottom right) and retrieve your samples.

You can stop the run at any time by pressing the Start/ Stop button

PROCEDURES

PrOvet HE

BRK5401	Speed	Time
Haematocrit (PCV)	12000	300
Serum 1	6000	600
Serum 2	5000	300
Urine	3500	300

PrOvet PCVs

BRK5401	Speed	Time
Haematocrit (PCV)	12000	300
Serum 1	6000	600
Serum 2	5000	300
Urine	3500	300

BRK5408	Speed	Time
Serum 1	6000	180
Serum 2	6000	240
Serum 3	5000	300
Urine	3500	300

PrOvet multi

BRK5401	Speed	Time
Haematocrit (PCV)	12000	300
Serum 1	6000	600
Serum 2	5000	300
Urine	3500	300

BRK5505	Speed	Time
Serum 1	3500	480
Sperm	1275	840
Faeces	3000	600
Urine	2500	500

If incorrect rotor fitted then all 4 LEDs will flash

PrOvet Serum

BRK5408	Speed	Time
Serum 1	6000	180
Serum 2	6000	240
Serum 3	5000	300
Urine	3500	300

PrOvet LA

BRK5508	Speed	Time
Serum 1	4000	400
Serum 2	3500	300
Serum 3	3000	300
Urine	2500	400

BRK5412/06	Speed	Time
Serum 1	4000	480
Sperm	3000	840
Faeces	3000	600
Urine	2750	500

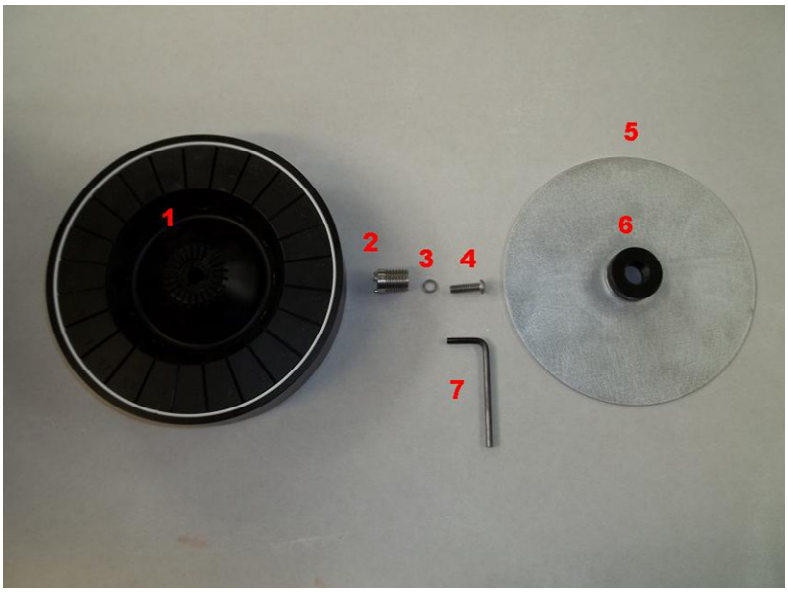
PrOvet Cyto

Slow	200	600
Medium	500	600
High	1000	500
Maximum.	2000	500

PrOED

500	600
1000	600
2000	600
3000	600

New Rotor Fixing



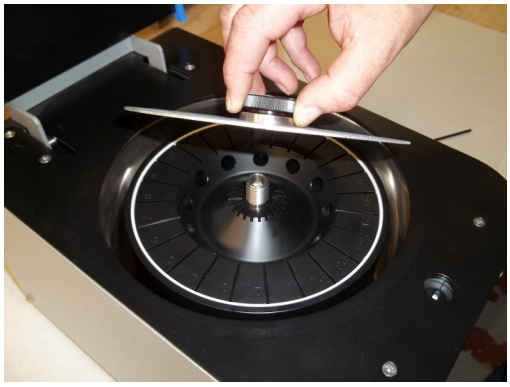
1: PLACE ROTOR ON SHAFT OF MOTOR

2: LOCATE THREADED FASTENER (ITEM 2) INTO INTERLOCKING PIN HOLES ON ROTOR

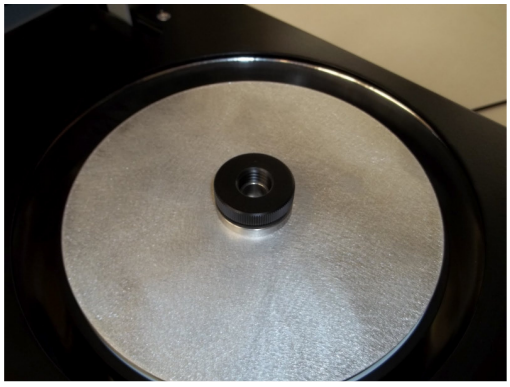
3: PLACE M6 SPRING WASHER (ITEM 3) ONTO M6X20MM SCREW (ITEM 4)

4: INSERT SCREW AND WASHER INTO CENTRAL HOLE OF THREADED FASTENER

5: TIGHTEN WITH ALLEN KEY (ITEM 7)



6: PLACE SAMPLES IN AS REQUIRED



7: PLACE ROTOR LID (ITEM 5) ON THREADED FASTENER

8: TIGHTEN USING ROTOR KNOB (ITEM 6)

PLEASE ENSURE THAT THE FIXING IS CHECKED AND TIGHTENED ON A REGULAR BASIS